# CONDITION CODES

## FISH CODES

**A** No visible marks on fish
**B** Flesh tear at tag site(s)
**C** Minor scale loss, 3 to 20%, (%'s for entire body in immediate recovery; for detailed injury examination, %'s are for section only).
**D** Major scale loss, >20%
**E** Laceration(s); tear(s), on body
**F** Severed body parts
**G** Hemorrhaging, bruised
**H** Stressed (lethargic, swimming poorly or sporadically)
**I** Spasmodic movement of body
**J** Very weak, barely gilling, died within 60 minutes of recovery
**K** Failed to enter system
**L** Fish likely preyed on based on telemetry, and/or circumstances relative to Turb'N recapture
**M** Substantial bleeding at tag site
**N** Bulging or missing eye(s)
**P** Observed predator attack or marks indicative of predator
**Q** Other information
**R** Necropsied, no obvious injuries
**S** Necropsied, internal injuries observed
**T** Trapped inside tunnel/gate well
**V** Fins displaced (ripped, torn, or pulled) from origin

## DISSECTION CODES

**B** Swim bladder ruptured or expanded
**D** Kidneys damaged (hemorrhaging)
**E** Broken bones obvious
**F** Hemorrhaging internally
**L** Organ displacement
**N** Heart damage, ruptured, hemorrhaging, etc.
**O** Liver damage, rupture, hemorrhaging, etc.

## FISH SURVIVAL CODES

**1** Alive when recaptured or not recaptured - assigned alive
**2** Dead when recaptured or not recaptured - assigned dead
**3** Live/Dead status unknown

## TURB'N TAG CODES

**A** Fully Inflated
**B** Partially inflated
**C** Pinhole, leaking
**D** Burst
**E** Not inflated at all
**X** Detached from fish

Appendix Table B
Length frequency distribution (10mm length groups) of treatment and control chinook salmon, by test scenario at The Dalles Dam.

| SCENARIO | TREATMENT OR CONTROL | MIN | MAX | MEAN | STD |
|---|---|---|---|---|---|
| Sluiceway | TREATMENT | 108 | 151 | 122.410 | 8.9928 |
| Bay 6, (Overflow) | CONTROL | 108 | 155 | 131.514 | 11.6389 |
| Bay 6, (Overflow) | TREATMENT | 107 | 171 | 130.376 | 11.6986 |
| Bay 4, (I-slot) | CONTROL | 105 | 170 | 130.235 | 12.9479 |
| Bay 4, (I-slot) | TREATMENT | 105 | 163 | 128.815 | 11.8282 |
| Bay 3, (unmodified) | CONTROL | 105 | 170 | 130.674 | 12.9501 |
| Bay 3, (unmodified) | TREATMENT | 108 | 159 | 127.526 | 11.2146 |

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Length frequency distribution (10mm length groups) of treatment and control chinook salmon, by test scenario at The Dalles Dam.

| SCENARIO | TREATMENT OR CONTROL | LENGTH GROUP | NUMBER |
|---|---|---|---|
| Bay 6, (Overflow) | CONTROL | 100 | 0 |
| Bay 6, (Overflow) | CONTROL | 110 | 1 |
| Bay 6, (Overflow) | CONTROL | 120 | 20 |
| Bay 6, (Overflow) | CONTROL | 130 | 27 |
| Bay 6, (Overflow) | CONTROL | 140 | 27 |
| Bay 6, (Overflow) | CONTROL | 150 | 25 |
| Bay 6, (Overflow) | CONTROL | 160 | 5 |
| Bay 6, (Overflow) | CONTROL | 170 | 0 |
| Bay 6, (Overflow) | CONTROL | 180 | 0 |
| Bay 6, (Overflow) | TREATMENT | 100 | 0 |
| Bay 6, (Overflow) | TREATMENT | 110 | 2 |
| Bay 6, (Overflow) | TREATMENT | 120 | 46 |
| Bay 6, (Overflow) | TREATMENT | 130 | 66 |
| Bay 6, (Overflow) | TREATMENT | 140 | 53 |
| Bay 6, (Overflow) | TREATMENT | 150 | 30 |
| Bay 6, (Overflow) | TREATMENT | 160 | 10 |
| Bay 6, (Overflow) | TREATMENT | 170 | 2 |
| Bay 6, (Overflow) | TREATMENT | 180 | 1 |
| Bay 4, (I-slot) | CONTROL | 100 | 0 |
| Bay 4, (I-slot) | CONTROL | 110 | 9 |
| Bay 4, (I-slot) | CONTROL | 120 | 53 |
| Bay 4, (I-slot) | CONTROL | 130 | 60 |
| Bay 4, (I-slot) | CONTROL | 140 | 53 |
| Bay 4, (I-slot) | CONTROL | 150 | 42 |
| Bay 4, (I-slot) | CONTROL | 160 | 8 |
| Bay 4, (I-slot) | CONTROL | 170 | 5 |
| Bay 4, (I-slot) | CONTROL | 180 | 0 |
| Bay 4, (I-slot) | TREATMENT | 100 | 0 |
| Bay 4, (I-slot) | TREATMENT | 110 | 9 |
| Bay 4, (I-slot) | TREATMENT | 120 | 62 |
| Bay 4, (I-slot) | TREATMENT | 130 | 90 |
| Bay 4, (I-slot) | TREATMENT | 140 | 64 |
| Bay 4, (I-slot) | TREATMENT | 150 | 33 |
| Bay 4, (I-slot) | TREATMENT | 160 | 11 |
| Bay 4, (I-slot) | TREATMENT | 170 | 2 |
| Bay 4, (I-slot) | TREATMENT | 180 | 0 |

Appendix Table B
Length frequency distribution (10mm length groups) of treatment and control chinook salmon, by test scenario at The Dalles Da

| SCENARIO | TREATMENT OR CONTROL | LENGTH GROUP | NUMBER |
|---|---|---|---|
| Bay 3, (unmodified) | CONTROL | 100 | 0 |
| Bay 3, (unmodified) | CONTROL | 110 | 7 |
| Bay 3, (unmodified) | CONTROL | 120 | 51 |
| Bay 3, (unmodified) | CONTROL | 130 | 63 |
| Bay 3, (unmodified) | CONTROL | 140 | 53 |
| Bay 3, (unmodified) | CONTROL | 150 | 41 |
| Bay 3, (unmodified) | CONTROL | 160 | 10 |
| Bay 3, (unmodified) | CONTROL | 170 | 5 |
| Bay 3, (unmodified) | CONTROL | 180 | 0 |
| Bay 3, (unmodified) | TREATMENT | 100 | 0 |
| Bay 3, (unmodified) | TREATMENT | 110 | 5 |
| Bay 3, (unmodified) | TREATMENT | 120 | 78 |
| Bay 3, (unmodified) | TREATMENT | 130 | 92 |
| Bay 3, (unmodified) | TREATMENT | 140 | 60 |
| Bay 3, (unmodified) | TREATMENT | 150 | 23 |
| Bay 3, (unmodified) | TREATMENT | 160 | 12 |
| Bay 3, (unmodified) | TREATMENT | 170 | 0 |
| Bay 3, (unmodified) | TREATMENT | 180 | 0 |
| Sluiceway | TREATMENT | 100 | 0 |
| Sluiceway | TREATMENT | 110 | 8 |
| Sluiceway | TREATMENT | 120 | 42 |
| Sluiceway | TREATMENT | 130 | 30 |
| Sluiceway | TREATMENT | 140 | 18 |
| Sluiceway | TREATMENT | 150 | 1 |
| Sluiceway | TREATMENT | 160 | 1 |
| Sluiceway | TREATMENT | 170 | 0 |
| Sluiceway | TREATMENT | 180 | 0 |

Appendix B

**Juvenile salmon with visible injuries, major scale loss (>20% per side) and/or equilibrium loss attributed to passage through unmodified and modified spillbays at The Dalles Dam, fall 1995. Fish were released through spillbay 6 modified with an overflow weir, spillbay 4 modified with an I slot weir, spillbay 3 unmodified, and controls were released downstream of spillage from spillbay 3.**

| Location | Fish Number | Description of Injury |
|---|---|---|
| Spillbay 4: Modified I slot | Y17 | bruised at top of right mandible |
| | Y24 | hemorrhaged left eye |
| | Left pectoral* | hemorrhaged at isthmus; gill cover folded back; *photo* |
| | E17 | hemorrhaged right eye; tear/cut at gill cover; *photo* |
| | M93 | abraided operculum, scrape behind head; *photo* |
| | M83 | bulging/hemorrhaged eye; bruised right gill; *photo* |
| | M87 | hemorrhaged right gill |
| | Left pectoral* | hemorrhaged left eye; *photo* |
| | Y71 | scale loss, *photo* |
| Spillbay 3: Unmodified | U74 | bulging right eye |
| | Y65 | bulging right eye |
| | V77 | hemorrhaged right gill |
| | B66 | hemorrhaged right eye; *photo* |
| | H89 | bulging eye; *photo*; (died $\leq$ 1h ) |
| | Y52 | loss of equilibrium |
| | V03 | loss of equilibrium |
| | V10 | loss of equilibrium |
| Controls for I-slot and Unmodified | KC6 | internal damage to backbone; internal hemorrhaging; loss of equalibrium; *photo*; (died $\leq$ 1h ) |
| | A81 | top of left eye bulging and torn from socket; *photo* |
| | J58 | left gill hemorrhaged |
| | J64 | hemorrhage at dorsal area (fish was trapped) |
| | J82 | loss of equilibrium |
| | A57 | scale loss |
| Spillbay 6: Overflow weir | ME3 | hemorrhage at base of right pectoral fin |
| | MF3 | hemorrhage at base of left pectoral fin; *photo* |
| | MH6 | scrape/bruise at top of fish between tagging sites; *photo* |
| | RF5 | bulging eye |
| | ME2 | hemorrhaged left eye; *photo* |
| | RF7 | hemorrhaged/bulging left eye; *photo* |
| | Right pectoral* | hemorrhaged right eye and jaw; *photo* |
| Controls for Overflow weir | H34 | bulging eyes; *photo* |

* Fin clip - identifying VI tag missing.

**Appendix B**

**Juvenile salmon with visible injuries major scale loss (>20% per side) and/or equilibrium loss attributed to passage through the ice-log sluice at The Dalles Dam powerhouse, November 1995.**

| Location | Fish Number | Description of Injury |
|---|---|---|
| Sluice | FE7 | hemorrhage on lateral line, bent; contusion visible; *photo*; (dead at 24h) |
| | HE3 | bruised at nape and left operculum; loss of equilibrium (dead at 24h) |
| | ET8 | 75% scale loss |
| | FL6 | loss of equilibrium |

Appendix Table B
Recapture times (minutes) of treatment and control chinook salmon, by test scenario at The Dalles Dam.

| SCENARIO | TREATMENT OR CONTROL | MIN | MAX | MEAN | STD |
|---|---|---|---|---|---|
| Sluiceway | TREATMENT | 2 | 145 | 9.92857 | 15.1727 |
| Bay 6, (Overflow) | CONTROL | 2 | 21 | 6.71287 | 3.9175 |
| Bay 6, (Overflow) | TREATMENT | 2 | 79 | 6.31818 | 6.9381 |
| Bay 4, (I-slot) | CONTROL | 1 | 28 | 7.76991 | 4.8589 |
| Bay 4, (I-slot) | TREATMENT | 2 | 77 | 7.94697 | 8.4185 |
| Bay 3, (unmodified) | CONTROL | 2 | 25 | 7.80444 | 4.5264 |
| Bay 3, (unmodified) | TREATMENT | 1 | 46 | 6.42520 | 4.9909 |

Appendix Table B
Recapture times (minutes) of treatment and control chinook salmon, by test scenario at The Dalles Dam.

| SCENARIO | TREATMENT OR CONTROL | TIME AT LARGE | NUMBER |
|---|---|---|---|
| Bay 6, (Overflow) | CONTROL | 2 | 1 |
| Bay 6, (Overflow) | CONTROL | 4 | 40 |
| Bay 6, (Overflow) | CONTROL | 6 | 23 |
| Bay 6, (Overflow) | CONTROL | 8 | 9 |
| Bay 6, (Overflow) | CONTROL | 10 | 9 |
| Bay 6, (Overflow) | CONTROL | 12 | 7 |
| Bay 6, (Overflow) | CONTROL | 14 | 9 |
| Bay 6, (Overflow) | CONTROL | 16 | 1 |
| Bay 6, (Overflow) | CONTROL | 18 | 1 |
| Bay 6, (Overflow) | CONTROL | 20 | 0 |
| Bay 6, (Overflow) | CONTROL | 22 | 1 |
| Bay 6, (Overflow) | TREATMENT | 2 | 5 |
| Bay 6, (Overflow) | TREATMENT | 4 | 102 |
| Bay 6, (Overflow) | TREATMENT | 6 | 42 |
| Bay 6, (Overflow) | TREATMENT | 8 | 16 |
| Bay 6, (Overflow) | TREATMENT | 10 | 9 |
| Bay 6, (Overflow) | TREATMENT | 12 | 6 |
| Bay 6, (Overflow) | TREATMENT | 14 | 5 |
| Bay 6, (Overflow) | TREATMENT | 16 | 2 |
| Bay 6, (Overflow) | TREATMENT | 18 | 4 |
| Bay 6, (Overflow) | TREATMENT | 20 | 2 |
| Bay 6, (Overflow) | TREATMENT | 22 | 5 |
| Bay 4, (I-slot) | CONTROL | 2 | 5 |
| Bay 4, (I-slot) | CONTROL | 4 | 64 |
| Bay 4, (I-slot) | CONTROL | 6 | 42 |
| Bay 4, (I-slot) | CONTROL | 8 | 42 |
| Bay 4, (I-slot) | CONTROL | 10 | 26 |
| Bay 4, (I-slot) | CONTROL | 12 | 19 |
| Bay 4, (I-slot) | CONTROL | 14 | 8 |
| Bay 4, (I-slot) | CONTROL | 16 | 7 |
| Bay 4, (I-slot) | CONTROL | 18 | 1 |
| Bay 4, (I-slot) | CONTROL | 20 | 3 |
| Bay 4, (I-slot) | CONTROL | 22 | 9 |
| Bay 4, (I-slot) | TREATMENT | 2 | 5 |
| Bay 4, (I-slot) | TREATMENT | 4 | 71 |
| Bay 4, (I-slot) | TREATMENT | 6 | 88 |
| Bay 4, (I-slot) | TREATMENT | 8 | 34 |
| Bay 4, (I-slot) | TREATMENT | 10 | 23 |
| Bay 4, (I-slot) | TREATMENT | 12 | 13 |
| Bay 4, (I-slot) | TREATMENT | 14 | 6 |
| Bay 4, (I-slot) | TREATMENT | 16 | 8 |
| Bay 4, (I-slot) | TREATMENT | 18 | 2 |
| Bay 4, (I-slot) | TREATMENT | 20 | 4 |
| Bay 4, (I-slot) | TREATMENT | 22 | 10 |

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Recapture times (minutes) of treatment and control chinook salmon, by test scenario at The Dalles Dam.

| SCENARIO | TREATMENT OR CONTROL | TIME AT LARGE | NUMBER |
|---|---|---|---|
| Bay 3, (unmodified) | CONTROL | 2 | 2 |
| Bay 3, (unmodified) | CONTROL | 4 | 61 |
| Bay 3, (unmodified) | CONTROL | 6 | 44 |
| Bay 3, (unmodified) | CONTROL | 8 | 42 |
| Bay 3, (unmodified) | CONTROL | 10 | 29 |
| Bay 3, (unmodified) | CONTROL | 12 | 20 |
| Bay 3, (unmodified) | CONTROL | 14 | 8 |
| Bay 3, (unmodified) | CONTROL | 16 | 7 |
| Bay 3, (unmodified) | CONTROL | 18 | 1 |
| Bay 3, (unmodified) | CONTROL | 20 | 3 |
| Bay 3, (unmodified) | CONTROL | 22 | 8 |
| Bay 3, (unmodified) | TREATMENT | 2 | 9 |
| Bay 3, (unmodified) | TREATMENT | 4 | 109 |
| Bay 3, (unmodified) | TREATMENT | 6 | 58 |
| Bay 3, (unmodified) | TREATMENT | 8 | 29 |
| Bay 3, (unmodified) | TREATMENT | 10 | 17 |
| Bay 3, (unmodified) | TREATMENT | 12 | 9 |
| Bay 3, (unmodified) | TREATMENT | 14 | 8 |
| Bay 3, (unmodified) | TREATMENT | 16 | 3 |
| Bay 3, (unmodified) | TREATMENT | 18 | 3 |
| Bay 3, (unmodified) | TREATMENT | 20 | 4 |
| Bay 3, (unmodified) | TREATMENT | 22 | 5 |
| Sluiceway | TREATMENT | 2 | 3 |
| Sluiceway | TREATMENT | 4 | 20 |
| Sluiceway | TREATMENT | 6 | 24 |
| Sluiceway | TREATMENT | 8 | 16 |
| Sluiceway | TREATMENT | 10 | 10 |
| Sluiceway | TREATMENT | 12 | 8 |
| Sluiceway | TREATMENT | 14 | 4 |
| Sluiceway | TREATMENT | 16 | 1 |
| Sluiceway | TREATMENT | 18 | 2 |
| Sluiceway | TREATMENT | 20 | 4 |
| Sluiceway | TREATMENT | 22 | 6 |

Appendix B
Tag recapture data for juvenile chinook salmon for each Turb-N Tag trial at The Dalles Dam.

Scenario=Sluiceway || Treatment or Control=' Treatment'

| Testlot | Number released | Total number of fish recovered | Total number of fish not recovered | Number alive | Number dead | Tags w/ no fish | Nothing/ unknown | # alive after 24h | # alive after 48h |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 100 | 98 | 2 | 97 | 1 | 0 | 2 | 95 | 95 |

Scenario=Bay 6, Overflow || Treatment or Control=' Control'

| Testlot | Number released | Total number of fish recovered | Total number of fish not recovered | Number alive | Number dead | Tags w/ no fish | Nothing/ unknown | # alive after 24h | # alive after 48h |
|---|---|---|---|---|---|---|---|---|---|
| 23 | 35 | 34 | 1 | 34 | 0 | 0 | 1 | 34 | 34 |
| 24 | 40 | 38 | 2 | 38 | 0 | 0 | 2 | 38 | 38 |
| 25 | 30 | 29 | 1 | 29 | 0 | 1 | 0 | 29 | 29 |
| TOTAL | 105 | 101 | 4 | 101 | 0 | 1 | 3 | 101 | 101 |

Scenario=Bay 6, Overflow || Treatment or Control=' Treatment'

| Testlot | Number released | Total number of fish recovered | Total number of fish not recovered | Number alive | Number dead | Tags w/ no fish | Nothing/ unknown | # alive after 24h | # alive after 48h |
|---|---|---|---|---|---|---|---|---|---|
| 23 | 70 | 62 | 8 | 62 | 0 | 3 | 5 | 62 | 62 |
| 24 | 80 | 79 | 1 | 79 | 0 | 0 | 1 | 79 | 79 |
| 25 | 60 | 57 | 3 | 57 | 0 | 0 | 3 | 57 | 57 |
| TOTAL | 210 | 198 | 12 | 198 | 0 | 3 | 9 | 198 | 198 |

Scenario=Bay 4, I-slot || Treatment or Control=' Control'

| Testlot | Number released | Total number of fish recovered | Total number of fish not recovered | Number alive | Number dead | Tags w/ no fish | Nothing/ unknown | # alive after 24h | # alive after 48h |
|---|---|---|---|---|---|---|---|---|---|
| 14 | 40 | 40 | 0 | 39 | 1 | 0 | 0 | 39 | 39 |
| 15 | 40 | 39 | 1 | 39 | 0 | 1 | 0 | 39 | 39 |
| 16 | 30 | 30 | 0 | 30 | 0 | 0 | 0 | 30 | 30 |
| 17 | 40 | 39 | 1 | 39 | 0 | 0 | 1 | 39 | 39 |
| 18 | 40 | 40 | 0 | 40 | 0 | 0 | 0 | 40 | 40 |
| 19 | 40 | 38 | 2 | 38 | 0 | 1 | 1 | 38 | 38 |
| TOTAL | 230 | 226 | 4 | 225 | 1 | 2 | 2 | 225 | 225 |

Appendix B
Tag recapture data for juvenile chinook salmon for each Turb-N Tag trial at The Dalles Dam.

Scenario=Bay 4, I-slot || Treatment or Control=' Treatment'

| Testlot | Number released | Total number of fish recovered | Total number of fish not recovered | Number alive | Number dead | Tags w/ no fish | Nothing/ unknown | # alive after 24h | # alive after 48h |
|---|---|---|---|---|---|---|---|---|---|
| 14 | 40 | 39 | 1 | 39 | 0 | 1 | 0 | 39 | 39 |
| 15 | 40 | 40 | 0 | 40 | 0 | 0 | 0 | 40 | 40 |
| 16 | 30 | 29 | 1 | 29 | 0 | 0 | 1 | 29 | 29 |
| 17 | 40 | 39 | 1 | 39 | 0 | 0 | 1 | 39 | 39 |
| 18 | 40 | 39 | 1 | 39 | 0 | 1 | 0 | 39 | 39 |
| 19 | 81 | 78 | 3 | 78 | 0 | 0 | 3 | 78 | 78 |
| TOTAL | 271 | 264 | 7 | 264 | 0 | 2 | 5 | 264 | 264 |

Scenario=Bay 3, Unmodified || Treatment or Control=' Control'

| Testlot | Number released | Total number of fish recovered | Total number of fish not recovered | Number alive | Number dead | Tags w/ no fish | Nothing/ unknown | # alive after 24h | # alive after 48h |
|---|---|---|---|---|---|---|---|---|---|
| 14 | 40 | 40 | 0 | 39 | 1 | 0 | 0 | 39 | 39 |
| 15 | 40 | 39 | 1 | 39 | 0 | 1 | 0 | 39 | 39 |
| 16 | 30 | 30 | 0 | 30 | 0 | 0 | 0 | 30 | 30 |
| 17 | 40 | 39 | 1 | 39 | 0 | 0 | 1 | 39 | 39 |
| 18 | 40 | 40 | 0 | 40 | 0 | 0 | 0 | 40 | 40 |
| 20 | 20 | 18 | 2 | 18 | 0 | 0 | 2 | 18 | 18 |
| 21 | 20 | 19 | 1 | 19 | 0 | 0 | 1 | 19 | 19 |
| TOTAL | 230 | 225 | 5 | 224 | 1 | 1 | 4 | 224 | 224 |

Scenario=Bay 3, Unmodified || Treatment or Control=' Treatment'

| Testlot | Number released | Total number of fish recovered | Total number of fish not recovered | Number alive | Number dead | Tags w/ no fish | Nothing/ unknown | # alive after 24h | # alive after 48h |
|---|---|---|---|---|---|---|---|---|---|
| 14 | 40 | 39 | 1 | 39 | 0 | 1 | 0 | 39 | 39 |
| 15 | 40 | 38 | 2 | 38 | 0 | 2 | 0 | 38 | 38 |
| 16 | 30 | 25 | 5 | 25 | 0 | 2 | 3 | 25 | 25 |
| 17 | 40 | 39 | 1 | 39 | 0 | 1 | 0 | 39 | 39 |
| 18 | 40 | 38 | 2 | 38 | 0 | 1 | 1 | 38 | 38 |
| 20 | 40 | 36 | 4 | 36 | 0 | 1 | 3 | 36 | 36 |
| 21 | 40 | 39 | 1 | 38 | 1 | 1 | 0 | 38 | 38 |
| TOTAL | 270 | 254 | 16 | 253 | 1 | 9 | 7 | 253 | 253 |
| | 1416 | 1366 | 50 | 1362 | 4 | 18 | 32 | 1360 | 1360 |